

# Plug Load Control Solutions

## Smart Solutions for IECC, ASHRAE 90.1 and 2022 Title 24 Compliance









# Automatic Shutoff Controls

**Save energy and utility costs while meeting energy code requirements with Leviton Plug Load Control solutions.**

- Plug loads include all devices that plug into a standard electrical outlet, like task lighting, computer monitors, cell phone chargers, and more
- Plug load or receptacle controls use automatic shutoff controls to de-energize controlled receptacles when a space is vacated
- Products not in use or on standby account for as much as 25% of total electrical consumption in commercial buildings
- Plug load controls prevent “standby” or “vampire” loads from continuing to draw electricity and wasting energy
- Energy codes and standards such as ASHRAE 90.1, IECC, and 2022 California Title 24 require receptacle or plug load controls
  - IECC requires controlled receptacles to be located within 12” of each uncontrolled receptacle
  - ASHRAE 90.1 requires 50% of all receptacles in private offices, open offices, and computer classrooms be controlled by an occupancy sensor or other controls
  - 2022 Title 24, Part 6 requires controlled receptacles to have the same automatic shutoff function as lighting using either occupancy sensing or schedule-based controls
- Control Strategies Include:
  - **Occupancy Sensing-Based Receptacle Control**—monitors occupants in a space energizes and de-energizes a controlled receptacle based on occupancy
  - **Schedule-Based Receptacle Controls**—allow the user to set the time of day a circuit will be energized and de-energized



# Interpreting the Codes and Standards

## **ASHRAE 90.1, Section 8.4.2**

### Automatic Receptacle Control

- At least 50% of all receptacles in private offices, open office areas (including modular partition receptacles), and computer classrooms must be controlled by an automatic control device:
  - An occupancy sensor that will turn receptacles OFF within 30 minutes of all occupants leaving a space
  - A scheduled basis, using a time-of-day operated control device that turns receptacles OFF at specific programmed times
- Plug-in strips and devices cannot be used for compliance - the receptacle must be controlled

## **IECC, Section C405.11.1**

### Automatic Receptacle Control

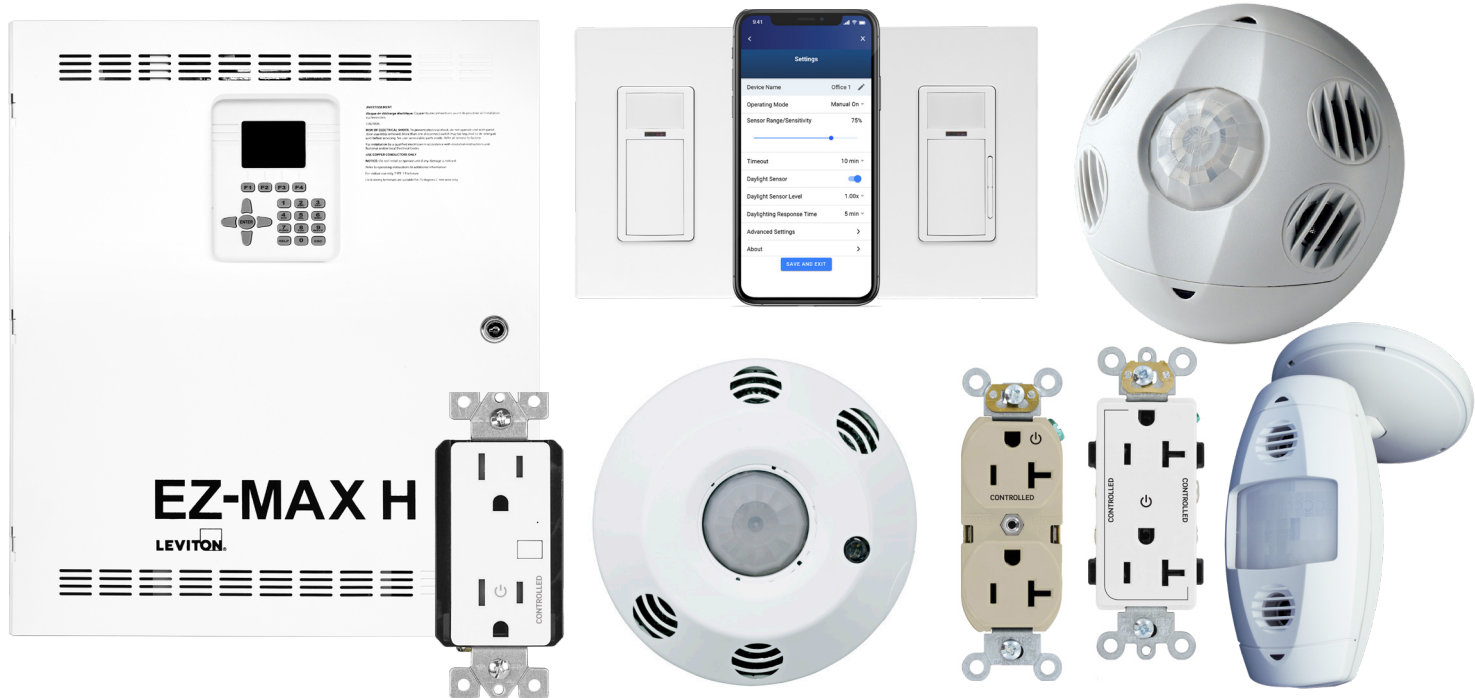
- Controlled receptacles are required to be located within 12" of each uncontrolled receptacle
- Receptacles must be controlled by time of day, occupancy sensors, or a signal from another control or alarm system
- An automated signal from another control or alarm system that shall turn off receptacles within 20 minutes after determining that the area is unoccupied
- Automatic receptacle controls shall comply with the following:
  - Either split-controlled receptacles shall be provided with the top receptacle controlled, or a controlled receptacle shall be located within 12 inches (304.8 mm) of each uncontrolled receptacle
- All controlled receptacles shall be permanently marked in accordance with NFPA 70 and be uniformly distributed throughout the space
- Plug-in devices shall not comply

## **2022 California Title 24, Section 130.5(d)**

### Automatic Receptacle Control, Circuit Controls for 120 VAC Receptacles

- Both controlled and uncontrolled 120V receptacles shall be provided in each private office, open office area, reception lobby, conference room, kitchenette in office spaces, and copy room.
- Must include an auto-OFF control for the controlled receptacles when the space is typically unoccupied, including an override control to remain ON for no more than 2 hours and a holiday 24-hour shut-off control that may not be a countdown timer switch
- At least one controlled receptacle must be installed within 6 feet of each uncontrolled receptacle. Alternatively, a split duplex receptacle with one controlled and one uncontrolled receptacle can be installed.
- Controlled receptacles must have a permanent marking to differentiate them from uncontrolled receptacles
- Hotel and motel guest rooms require at least 50 percent of receptacles to be auto-off via captive key controls, occupancy sensing controls, or automatic controls so they are OFF within 30 minutes of vacancy
  - At least one-half of the 120-volt receptacles in each guestroom must be controlled receptacles
- Plug-in strips and devices cannot be used for compliance





# Occupancy Sensing Based Receptacle Control

## Receptacle and Lighting Control with OPP20 Super Duty Power Pack

- OPP20 models support plug load control, switched daylighting, sensing control, and bi-level switching
- UL/cUL 916 Listed for Energy Management Equipment
- Exclusive self-detect configurable local switch input
- Robust and reliable with mechanical latching relays and industry-exclusive “fail-safe” design
- OPP20 complies with UL general purpose plug load control requirements

## Recommended Solutions

	Description	Cat No.
	Super Duty Power Pack with Auto-ON, Manual-ON, and Local Switch Inputs	OPP20-0D2
	Super Duty Power Pack with Auto-ON, Manual-ON, Local Switch, and Photocell Input	OPP20-RD4
	Smart PIR 0-10V Dimming & Switching Wallbox Sensors	ODS15-IDx, ODS15-GDx, ODS15-I1x, ODD10-IDx, ODD24-IDW, ODP10-I1x, ODSMT-MDx, ODDMT-MDx, ODDMT-MLx, ODP10-M1x
	Smart PIR Ceiling Mount Room Controller (SRC)	ACY15-DIW
	Smart PIR Switching Ceiling Mount Sensor (CMS)	ACS15-DIW
	Smart Multi-Tech Ceiling Mount Room Controllers (SRC)	AC705-DMW, ACY20-DMW
	Smart Multi-Tech Switching Ceiling Mount Sensors (CMS)	ACS05-DMW, ACS10-DMW, ACS20-DMW, AC205-DMW, AC220-DMW
	Ceiling-Mount Multi-Tech Occupancy Sensor	OSC05-MOW, OSC10-MOW, OSC20-MOW
	Ceiling-Mount Ultrasonic Occupancy Sensor	OSC010-MOW, OSC05-UOW, OSC10-UOW, OSC20-UOW
	Ceiling-Mount PIR Occupancy Sensor	OSC020-MOW, OSC04-IOW, OSC15-IOW
	Ceiling-Mount Multi-Tech Occupancy Sensor with Isolated Relay	OSC05-RMW, OSC10-RMW, OSC20-RMW
	Ceiling-Mount Ultrasonic Occupancy Sensor with Isolated Relay	OSC010-RMW, OSC05-RUW, OSC10-RUW, OSC20-RUW
	Ceiling-Mount PIR Occupancy Sensor with Isolated Relay	OSC020-RMW, OSC04-RIW, OSC15-RIW
	Wall Mount Multi-Tech Occupancy Sensor	OSW12-MOW
	Wall Mount Multi-Tech Occupancy Sensor with Isolated Relay	OSW12-RMW
	Wide-View Wall Mount PIR Occupancy Sensor	OSWWV-IOW
	Wide-View Wall Mount PIR Occupancy Sensor with Isolated Relay	OSWWV-RIW
	Long-Range Wall Mount PIR Occupancy Sensor	OSWLR-IOW
	Long-Range Wall Mount PIR Occupancy Sensor with Isolated Relay	OSWLR-RIW
	Marked “Controlled” Receptacle	16352-2PW





Visit [Leviton.com/sensors](http://Leviton.com/sensors) for more information and to see the full line of sensing solutions.

# Wireless Occupancy Sensing and Plug Load Control

## Receptacle and Lighting Control with GreenMAX® DRC Wireless

- Receptacle top outlet is always ON, bottom outlet is controlled for control of lamps, electronic devices, and appliances
- Wireless devices are easily expandable and can be used for ON/OFF or occupancy sensing control solutions

### Recommended Solutions

	Description	Cat No.
	GreenMAX DRC 4-Button Wireless Keypad Room Controller	DRKDN-U4W
	Wireless 20A ON/OFF Switching Power Pack	LU20S-DNW
	Zigbee Wireless Passive Infrared (PIR) Occupancy Sensor & Photocell	ZC015-BIW
	Zigbee Controlled Wireless Receptacle	ZSTLR-1HW






Visit [Leviton.com/greenmaxdrc](http://Leviton.com/greenmaxdrc) for more information and to see the full line of wireless room control solutions.

# Schedule Based Receptacle Control—Time of Day





## Receptacle and Lighting Control with EZ-MAX® H Relay System

- Compact design engineered to be contractor friendly, quick to install, and simple to configure
- Built-in astronomical and real time clock for scheduling
- Easy programming configurations
- Integrates low voltage inputs such as occupancy sensors and photocells

### Recommended Solutions

	Description	Cat No.
	EZ-MAX H 8-Circuit Relay Panel, relays purchased separately	R08BD-H00
	EZ-MAX H 24-Circuit Relay Panel, relays purchased separately	R24BD-H00
	1-Pole Latching 20A @120VAC Tungsten; 16A @120/277VAC Elect. Ballast; 30A @120/277VAC Mag Ballast; 20A @247VAC Elect. Ballast	RELAY-L3H
	2-Pole, Elect. Held N.O. 20A @208/240/480VAC Mag. Ballast	RELAY-2PH
	Marked "Controlled" Receptacles	16352-2PW

## Recommended Solutions, cont'd

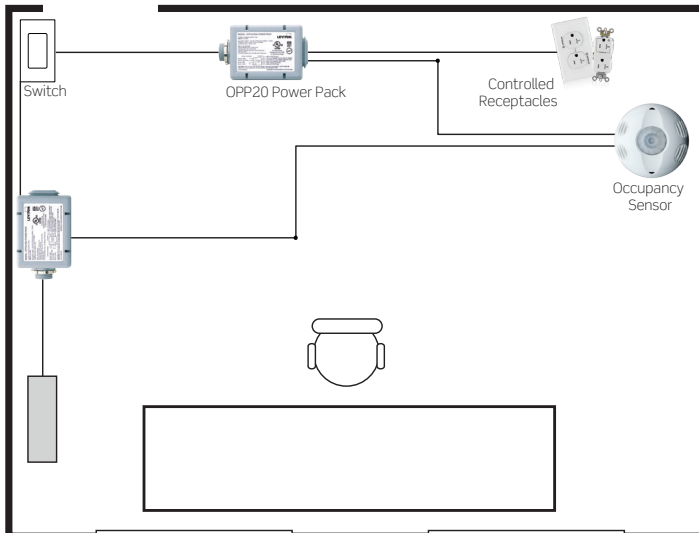
	Description	Cat No.
	Ceiling-Mount Multi-Technology Occupancy Sensor	OSC05-MOW, OSC10-MOW, OSC20-MOW
	Ceiling-Mount Ultrasonic Occupancy Sensor	OSC05-UOW, OSC10-UOW, OSC20-UOW
	Ceiling-Mount PIR Occupancy Sensor	OSC04-IOW, OSC15-IOW
	Ceiling-Mount Multi-Technology Occupancy Sensor with Isolated Relay	OSC05-RMW, OSC10-RMW, OSC20-RMW
	Ceiling-Mount Ultrasonic Occupancy Sensor with Isolated Relay	OSC05-RUW, OSC10-RUW, OSC20-RUW
	Ceiling-Mount PIR Occupancy Sensor with Isolated Relay	OSC04-RIW, OSC15-RIW
	Wall Mount Multi-Technology Occupancy Sensor	OSW12-MOW
	Wall Mount Multi-Technology Occupancy Sensor with Isolated Relay	OSW12-RMW
	Wide-View Wall Mount PIR Occupancy Sensor with Isolated Relay	OSWWV-RIW
	Long-Range Wall Mount PIR Occupancy Sensor	OSWLR-IOW
	Long-Range Wall Mount PIR Occupancy Sensor with Isolated Relay	OSWLR-RIW
	Description	Cat No.
	Low Voltage Switch, White	00LVS-xxW*

\* xx = 01, 02, 03, 04, 05, 06, 08, or 10 Button Low Voltage Switch

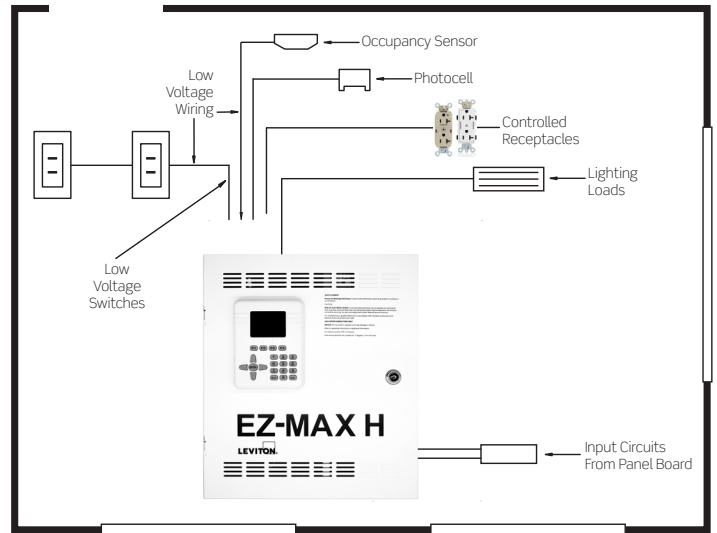


# Solution Diagrams

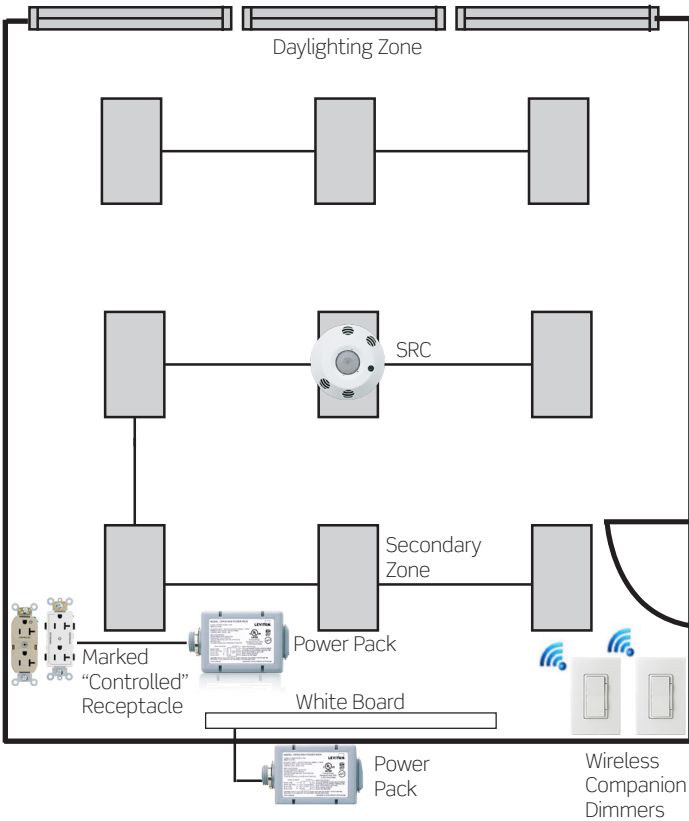
## Occupancy Sensing Based Receptacle Control



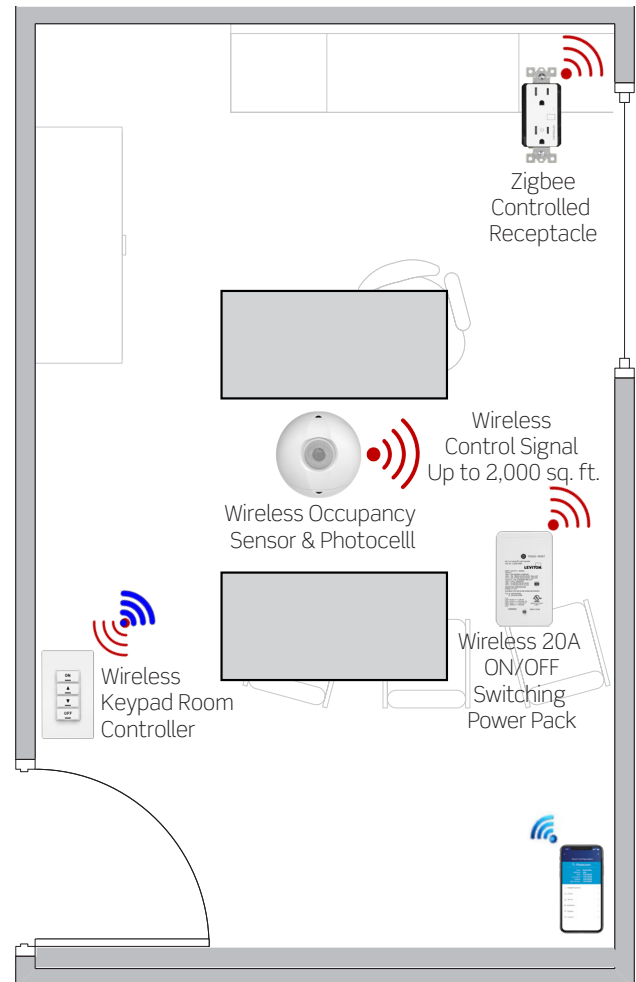
## Schedule Based Receptacle Controls with EZ-MAX H



## Occupancy Sensing Based Receptacle Control with SRC



## Wireless Occupancy Sensing Based Plug Load Control



# Controlled Receptacle Identification

To meet the requirements for identifying receptacles that will be automatically de-energized as part of an overall plug load control program, Leviton offers two compliant solutions:

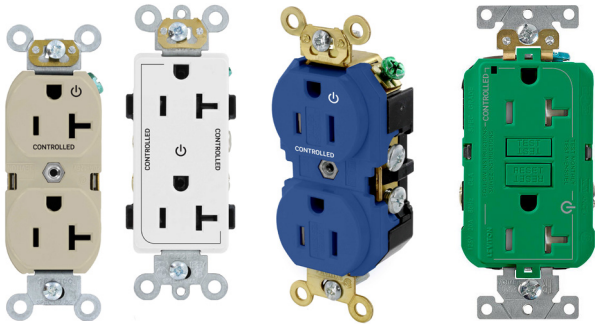
## Wallplate Decals

For the most economical retrofit application, these decals allow you to mark existing receptacle wallplates with the required symbol, and the word “CONTROLLED” (optional) for easy identification. Decals use a UL-approved material for marking and labeling.

## Imprinted Receptacles

For new construction and renovation applications, custom imprinting directly on the receptacle is available for our most popular specification grade receptacles, in both standard and Decora® platforms.

### Imprinted Receptacles



## Receptacle Ordering Information

	Industrial Specification Grade						Smartlock Pro 20A
	Standard		Tamper Resistant		Decora		
	15A	20A	15A	20A	15A	20A	
<b>One outlet controlled</b>	5262-S1x	5362-S1x	5262-1Px	5362-1Px	16252-1Px	16352-1Px	G-5362-2Tx
					TDR15-S1x	TDR20-S1x	
<b>Two outlets controlled</b>	5262-S2x	5362-S2x	5262-2Px	5362-2Px	16252-2Px	16352-2Px	
					TDR15-S2x	TDR20-S2x	

Where “x” = color code; standard Leviton colors apply

	Commercial Spec Grade			
	Standard		Decora	
	15A	20A	15A	20A
<b>One outlet controlled</b>	CR015-1Px	CR020-2Px	—	—
	TBR15-S1x	TBR20-S1x	—	—
<b>Two outlets controlled</b>	CR015-2Px	CR020-2Px	T5633-2xx	T5833-2xx
	TBR15-S2x	TBR20-S2x	—	—

Where “x” = color code; standard Leviton colors apply



## Service and Support During Every Step of the Process

### Exclusive Support Resources:

- **Occupancy sensor layout services**— have a team of experts create occupancy sensor layouts at no cost to you directly on your CAD drawings, complete with a List of Equipment within an average turnaround time of 3 business days\*—go to portal.leviton.com
- **ez-Learn** - get sensor smart in just 90 minutes from the comfort of your home or office with this exclusive 24/7 online training — go to [www.leviton.com/ezlearn](http://www.leviton.com/ezlearn)
- **Lighting control specialists** at your disposal
- **Field service engineers** for top-level support
- **Factory commissioning service**
- **Dedicated technical support** via phone at **800-959-6004**

\* Average turnaround time based on projects for up to 200 sensors per system



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**Visit our website at: [www.leviton.com/plugloadcontrol](http://www.leviton.com/plugloadcontrol)**

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G-9303A/D24-aa  
REV APR 2024